

## Editorial: ISO 14040 - The First Project

Manfred Marsmann

Dr. Manfred Marsmann, Bayer AG, Konzernstab, Qualitäts-, Umwelt- und Sicherheitspolitik, D-51368 Leverkusen, Germany  
(Chairman of TC 207 Subcommittee SC 5)

On June 16, 1997 the final result of the vote on document 14040 by the ISO Central Secretariat in Geneva was made public. Of the nations eligible to vote, 34 (i.e. 97 %) voted in favour of the publication of an International Standard entitled "Environmental Management – Life Cycle Assessment – Principles and Framework". This overwhelming agreement concluded more than three and a half years of extremely hard work.

However, that is not all. This date signifies the moment when there was an international consensus and practical acknowledgement of "Life Cycle Assessment", still a relatively new environmental management instrument.

TC 207 Subcommittee SC 5, assigned the task of developing the standard, had thus been successful in rapidly attracting interest and encouraging greater involvement in the project in the period between the start of its activity in Paris in November 1993 and its most recent meeting in Kyoto in April 1997.

What is more, the participation of more and more nations has led to the desire to produce a document which reflected the ideas, knowledge and convictions of such a large community. This has been impressively achieved with International Standard ISO 14040.

In future, the task will be to further propagate and communicate this brief text, which covers a mere 12 pages, and to implement the agreed measures it contains.

The key points in the standard are undoubtedly the definitions, with the description of life cycle assessment as a "compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle" genuinely reflecting the scope of and the challenge for every LCA study.

Furthermore, the framework concept with its elements

- Goal and scope definition
- Inventory analysis
- Impact assessment
- Interpretation

will remain a valid orientational framework for a long period of time.

Effective reporting and documentation will be essential to any LCA study, as will the selection of the correct form of critical review process and the subsequent close compliance thereof.

Indeed, the graduated critical review procedure, to be adapted to the scope of the LCA study, will be a significant communication and control element.

There is a middle way between an over-meticulous consideration of the entire data of a study and the making of statements unjustifiably derived from an LCA study, but this requires compromises. A critical review must not be argued about, it must be carried out.

The long road leading to the introduction of this standard began, as already mentioned, in November 1993 with the constitutional meeting of Subcommittee SC 5 in Paris.

The course however, had already been set beforehand. It should be remembered that the Strategic Advisory Group on Environment (SAGE), which concerned itself in 1992 with the entire structure of the planned ISO Technical Committee on Environmental Management, also formed a subgroup which, under the leadership of JAMES FAVA, energetically and successfully worked towards the inclusion of life cycle assessment in subsequent standardisation activities.

The "Guidelines for Life Cycle Assessment: A Code of Practice" published by SETAC in August 1993 were a further stroke of luck for Subcommittee SC 5. Without the preliminary organisational and conceptional work carried out under the supervision of SAGE and SETAC, ISO 14040 would not be a reality today.

Success is dependent, however, not only on documents, but on the involvement of experts. This, in particular, is true of standardisation activities, which require the participation of experts in projects.

FRANK CONSOLI took on the job of leading this project, which was initially to develop a basic document on Life Cycle Assessment to act as a common platform for further work. Words cannot describe Frank's immense and indefatigable efforts, be it in the arguments about valuation, evaluation, assessment, etc. at the subsequent meeting in Philadelphia, wrestling with the issue of critical reviews in Nice, the shift from improvement assessment to interpretation in Berlin, the "all or nothing" discussion in Vancouver or the nervous period before the final run-in in Rio.

These were just some of the important milestones along the way. If one considers just how much effort is involved in organising a subcommittee with five working groups, how carefully the complex project management needs to be aligned to ISO conventions and that meetings often involve work around the clock, one can begin to gain an impression of the tasks which the secretary of this subcommittee had to fulfil. The fact that countries again and again assign their best individuals to these tasks cannot fail to make an impact. PASCAL POUPET, for many years secretary of Subcommittee SC 5, has also been closely involved in the success of ISO 14040 and other ongoing projects, as have the many other energetic participants in SC 5.

One of the features of the ISO is its participation in the world-wide standardisation procedures only via the pathways of the **national standardisation committees**. In Germany, the standardisation procedure for LCA in the NAGUS was based on the AA 3 working group on product ecobalances. Under the stewardship of HARALD NEITZEL from the environmental protection agency, as well as through the co-operation of KLAUS LEHMANN and JÖRG GRAßMANN from the DIN headquarters, the AA 3 represents the appropriate platform for an exchange of views and for the preparation of international discussions. Here, I would like to take the opportunity to recognise these colleagues particularly for their commitment, their skills and their expertise.

Where do we go from here, now that ISO 14040 has been passed? ISO itself naturally leads the way, so that ISO 14041 is the next task on the list. There is a draft International Standard (DIS) entitled "Environmental Management – Life Cycle Assessment – Goal and Scope Definition and Inventory Analysis" which is already well advanced and will hopefully be adopted as a final DIS during the next SC 5 meeting in Madrid in December 1997. This is at least the declared intention of the convenors of WG 2 and WG 3, HANS-JÜRGEN KLÜPPEL and KOUI MATSUDA, who are also planning to complete this good all-round package with a technical report ("Illustrative examples on how to apply ISO 14041").

The projects "Life Cycle Impact Assessment" (ISO 14042) led by SVEN-OLAF RYDING and "Life Cycle Interpretation" (ISO 14043) led by HENRI LECOULS will undoubtedly then move into centre stage.

Both documents, which are essential components of the overall structure of life cycle assessment, also represent new territory.

The "Life Cycle Impact Assessment" document, which concentrates on the difficult questions of the ecological depiction of material balance data, is being followed and monitored by the whole of TC 207 with great interest.

"Life Cycle Interpretation" is still a new element, but it is nonetheless vital, since how else can the many and varied individual findings from life cycle inventories and impact assessments be pooled to give a unified and meaningful result?

In addition to this difficult work, the interrelationships within TC 207 will also play a role in future. What relationship is there between environmental management systems and life cycle assessments? Or between ecolabels and LCA?

It is not possible to deal with all these issues with the same intensity since the main task of the subcommittee is to complete the overall structure of life cycle assessment.

The introduction of ISO 14040 sets a process in motion which is now unstoppable. Within a short period of time we shall have four standards which combine the elements of life cycle assessment, as far as this is possible, in a way which is comprehensive yet practical, standardised yet flexible and precise yet comprehensible.